United States
Department of
Agriculture

Forest
Service

May 2005

NON-NATIVE INVASIVE PLANT SPECIES CONTROL PROJECT

Towns of Berlin and Crawford's Purchase
Coos County, New Hampshire
Low and Burbanks Grant, Thompson and Meserves Purchase, and Chandler's Purchase
Coos County, New Hampshire
And
Towns of Bethlehem, Franconia, Campton and Woodstock
Grafton County, New Hampshire

Scoping Report

Prepared By

White Mountain National Forest

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Cover Photo: Brown Knapweed on Jefferson Notch Road, White Mountain NF

WHITE MOUNTAIN NATIONAL FOREST
Non-Native Invasive Plant Species Control Project
Scoping Report

Summary

The White Mountain National Forest is proposing to control the spread of non-native invasive plant species within the National Forest by attempting to eradicate known and suspected plant populations in specific areas of the Forest through the use of hand pulling, hand cutting and treatment with registered herbicides. The focus of this project proposal is two-fold.

- The first focus of the project is treatment of 11 known populations on sites ranging in size from one plant to 1/8-acre. The 11 sites together total less than one acre. The non-native invasive plant species include two populations of brown knapweed, five populations of Japanese knotweed, and four populations of Phragmites.
- Three of the 11 known sites are on the Jefferson Notch Road, all located between the Caps Ridge Trailhead and US Highway 2 to the north. The second focus of this project is treatment of suspected populations of brown knapweed along the Jefferson Notch Road south of the Caps Ridge Trailhead. There have been reports of knapweed along this stretch of the road, but exact location cannot be determined until the plants return in the summer.

The proposed eradication treatment for these plants includes hand pulling, or treatment with the registered herbicide Glyphosate using one of the following methods: backpack foliar spray application, stem injection, or a combination of stump cutting and injection. Glyphosate is a non-selective, systemic herbicide with a short-residual life. The Forest Service has safely and effectively utilized herbicides on other National Forests for this same purpose. If these herbicides prove effective at eradicating the non-native invasive plant species in these locations, the White Mountain National Forest may propose to use them on a regular basis to control the spread of these and other species.

Project Background

Non-native invasive species (NNIS) are plants or animals whose origin is generally somewhere other than North America. They may be completely harmless or even beneficial in their native environments, but when introduced elsewhere, they can disrupt the established order and function of the ecosystem and become especially aggressive or difficult to manage. In the United States, NNIS are a primary cause for almost half of the species being listed under the Endangered Species Act (The Nature Conservancy, 1996) and are estimated to cost $138 billion per year in major environmental damages and losses nationwide (Pimentel et al, 1999)

Direction for Managing NNIS

The Federal Noxious Weed Act of 1974, as amended (7 USC 2801 et seq.), requires cooperation with State, local, and other federal agencies in the management and control of NNIS. Executive Order 13112 requires all pertinent federal agencies (subject to budgetary appropriations) to

1. Prevent the introduction of NNIS;
2. Detect and rapidly respond to and control populations of NNIS in a cost effective and environmentally sound manner;

3. Monitor NNIS populations;
4. Restore native species and habitat conditions in ecosystems that have been invaded;
5. Conduct research and develop technologies to prevent introduction and provide for environmentally sound control measures; and
6. Promote public education on NNIS.

USDA Departmental Regulation 9500-10 promotes integrated management approaches to research and control. Forest Service Manual 2080 provides policy on noxious weed management. The Eastern Region (Region 9) of the Forest Service, which includes the White Mountain National Forest, has developed a strategy for addressing NNIS. The White Mountain National Forest is a designated Weed Management Area.

NNIS on the White Mountain National Forest

Within the White Mountain National Forest NNIS pose a serious threat to plant and animal community health and diversity. Because exotic species have been transplanted outside their original range, they often lack natural controls (e.g., disease, predators, parasites, or climate), which allows them to out-compete and eventually replace more sensitive native species. Not only do they compete with native species for resources, but they also cause loss of habitat and food for wildlife, alter soil structure and chemistry, alter fire regimes and plant succession, serve as reservoirs for pathogens, and hybridize with natives to compromise local genetic diversity. Once NNIS become established, they are extremely difficult to eradicate, and the resulting change in community plant composition can alter ecosystem dynamics and functions over time.

NNIS may spread through a variety of processes, including wind or water dispersal, in forage for wildlife such as birds, or by using barbs that attach to fur or clothing. However, while seeds and plant material may be dispersed or carried to new sites, new occurrences generally do not establish and spread unless certain environmental conditions exist. NNIS tend to be most successful when soil has been disturbed and sunlight levels are high (i.e. open canopy). Management activities that perpetuate open sunlight conditions (e.g. road/trail construction and maintenance, timber sale operations, wildlife opening maintenance, prescribed burning) may be more likely to result in population increases. Other activities, such as hiking, boating, using pack animals, or landscaping can also spread NNIS. At the same time, prevention, mitigation and eradication efforts may help reduce or eliminate potential effects.

The majority of NNIS locations observed within the vicinity of the White Mountain National Forest have been along roads and highways, and in developed areas (e.g., towns, housing developments, and recreation areas). Roads, as fragmenting agents, increase the amount of forest-edge habitat on the landscape. The resulting "road-effect zone" is subject to alterations of the microclimate (e.g., increases in light and temperature and a decrease in relative humidity), as well as to frequent and intense disturbance activities (maintenance and traffic), the combined effects of which tend to favor the growth of opportunistic NNIS (Parendes and Jones 2000; Forman and Deblinger 2000). Roads also serve as corridors for the dispersal of invasive plants through the spread of seed propagules (e.g., seeds or vegetative fragments) that attach to vehicle hardware (e.g., tires and undercarriages) (Westbrooks 1998; Parendes and Jones 2000; Lonsdale and Lane 1994). NNIS infestations can extend 250 meters or more beyond road's edge into the adjacent forest (Saunders et al, 1991; Primack 2000; Forman and Deblinger 2000). A Wisconsin

study found that NNIS were most prevalent within 15 meters of the road; however, a few species penetrated up to 150 meters into the adjoining hardwood forest (Watkins et al, 2003).

During 2001 and 2002, an invasive plant inventory was conducted by the New England Wildflower Society. It covered approximately 220,000 acres across the National Forest and adjacent lands, and focused on disturbed areas (e.g. roads, timber sale areas), but also included trails, Wilderness, and other sites with a lower probability for occurrence. Almost 40 species were found to occur within or adjacent to National Forest lands.

Two-thirds of the invasive plant occurrences were found outside the National Forest on private land. Almost half (47 percent) of all occurrences were individuals that were intentionally planted (i.e. in a garden). Thirty percent of the occurrences were found along roads. All three Ranger Districts contain infestations, with the majority found on the west side of the Forest, along the I-93 corridor. As yet, most of the occurrences are not extensive. Approximately 10% of occurrences include more than 100 individual plants, and 3% include more than 1,000 plants.

Of the 11 known sites identified in this project proposal, 10 are adjacent to Forest roads and the other is adjacent to a Forest administrative site. Additional suspected sites along the remainder of the Jefferson Notch Road are all adjacent to the road itself. Eradication efforts can prevent a more extensive problem if conducted while all of these populations are still small.

Cost Effective and Environmentally Sound Treatment of NNIS

Any effort to control NNIS populations must account for the following circumstances:

- In disturbed and high use areas (roads, trails and recreation sites), NNIS may out-compete native species, and spread to less disturbed areas (Ferguson et al, 2003, p 1);
- When an area is dominated by NNIS, it does not buffer erosion and runoff as well as native species (Hoffman & Kearns, 1997, p 44);
- Many weed species are allopathic, and change the chemistry of the soil so it is no longer productive for native plants (Hoffman & Kearns, 1997, p 41);
- NNIS spread and establish much faster than native species, as native diseases or pests are not adapted to control them (Tu et al, 2001);
- The economic cost of controlling weeds without the use of herbicides is outpacing available resources.

Literature suggests that controlling Japanese knotweed by manual techniques alone is labor intensive (often requiring weekly or bi-weekly treatments throughout the growing season) and ineffective (Stoll, 2004). Manual techniques have been somewhat more effective at controlling Phragmites; however, if done incorrectly at the wrong time, populations may actually increase (Marks et al, 1993), and cut populations often return in subsequent growing seasons. Manual techniques can also be used with knapweed; but the population would need treatment several times in a growing season to exhaust the root supply. With all but one of the proposed sites along a road, regular roadside maintenance (i.e. brushing and mowing) can propagate unchecked populations by promoting re-sprouting and seed dispersal. The possibility for spread can be minimized by implementing a management regime that includes treating all of these species and/or the affected areas with registered herbicides approved for specific applications and under specific conditions. The use of any herbicide, and the application method chosen, must be in accordance with an approved risk assessment and minimize environmental consequences.

What Do We Need from You?

This scoping report summarizes a proposal by the U.S. Department of Agriculture (USDA) Forest Service, White Mountain National Forest to implement hand and herbicide treatment for the control of 11 site specific NNIS infestations, with the potential for additional sites along the Jefferson Notch Road. The purpose of this scoping report is to inform interested parties of the proposal and to solicit comments on the proposal's activities. After receiving comments in response to this scoping report, the Responsible Official will determine the level of analysis and environmental documentation needed to assess effects of the proposed action.

This Report includes the Purpose and Need for the project, the Proposed Action, the Decisions to be Made, and How You Can Submit Comments to the Forest Service. It includes a summary table categorizing the locations and proposed treatments for the 11 known sites, and a map showing general site locations.

If you have questions or wish to obtain more specific information regarding particular sites, contact these individuals on the District where the site or sites of interest are located.

- **Ammonoosuc/Pemigewasset District:** 603-869-2626
  Anna Johnston (amjohnston@fs.fed.us)
- **Androscoggin District:** 603-466-2713
  Lesley Rowse (lrowse@fs.fed.us)

As you review this project proposal, you may find that you have information about specific sites in the proposed project that you believe has been unavailable or overlooked by the Forest Service, and which may be important to consider in arriving at a decision. If you choose to comment on this proposal, we ask you to submit this information, and any other thoughts you may have specific to the project, on or before Monday, June 27, 2005. You will find details on how to comment at the end of this report.

Purpose and Need for Change

The Purpose for this project is to accomplish resource objectives to meet the overall management direction for the White Mountain National Forest, as established in the Forest Plan (USDA 1986a. LRMP, III 30-41). The Forest Plan establishes Forest-wide goals, as well as standards and guidelines for achieving these goals.

The Forest Plan goal applicable to control of NNIS (LRMP, p III-2):

- Conduct all management activities with full recognition of the appearance of the Forest, realizing the importance to society of a natural landscape distinct from the man-made environments otherwise dominant in the East.

The Forest Plan standards and guidelines specific to control of NNIS (LRMP, pp III-20, III-28):

- Forest pest management activities will be conducted to meet the objective of specific management areas.
- Pesticides will be used only after analysis clearly demonstrates that pesticide use is essential to meet management objectives.
- Emphasis will be placed on those pest problems that pose the greatest potential threat to meeting management goals and objectives. Integrated pest management will be practiced

to a level commensurate with resource values and management objectives at risk.
- Only EPA approved pesticides will be used according to label directions.

The Need for this project is to manage the existing condition in a manner that moves it towards the "Desired Future Condition" described by the Forest Plan.

Proposed Action

The White Mountain National Forest is proposing to control the spread of non-native invasive plant species at specific locations within the National Forest by attempting to eradicate known plant populations through the use of hand pulling, or treatment with registered herbicides using one of the following methods: backpack foliar spray application, stem injection, or a combination of stump cutting and injection. The focus of this project proposal is 11 known populations on sites ranging in size from one plant to 1/8-acre (and totalling less than one acre altogether), and suspected locations along the Jefferson Notch Road. The known populations of non-native invasive plant species include two sites with brown knapweed, five sites with Japanese knotweed, and four sites with Phragmites (Table 1).

Table 1. Site information for known NNIS populations proposed for eradication.

Site	Town	Location	GPS Coordinates	Species	Size and Abundance	Proposed Treatment
Ammonoosuc/Pemigewasset Ranger District						
AP 1	Bethlehem	State Hwy. 3 0.1 mile north of overlook/picnic area	N 44.24289 W 71.65319	Japanese Knotweed	200 Sq Ft 10-50 Plants	Cut Stump or Stem Injection with Glypro® or Rodeo®
AP 2	Bethlehem	State Hwy. 3 0.2 mile north of Town line	N 44.23364 W 71.66628	Phragmites	100 Sq Ft 10-50 Plants	Cut Stump with Rodeo®
AP 3	Bethlehem	Gale River Road 1.6 miles south of State Hwy. 3	N 44.23417 W 71.60525	Phragmites	2500 Sq Ft >100 Plants	Cut Stump with Rodeo®
AP 4	Franconia	State Hwy. 3 Near I93 Exit Ramp	N 44.19864 W 71.68092	Brown Knapweed	5000 Sq Ft >500 Plants	Back Pack Spray with Glypro®
AP 5	Bethlehem	Ammonoosuc Ranger Station	N 44.25496 W 71.63221	Japanese Knotweed	50 Sq Ft 1-10 Plants	Cut Stump or Stem Injection with Glypro® or Rodeo®
AP 6	Woodstock	State Hwy. 118 0.9 miles north of Elbow Pond	N 44.00631 W 71.74322	Japanese Knotweed	750 Sq Ft 10-50 Plants	Cut Stump or Stem Injection with Glypro® or Rodeo®
AP 8	Campton	Adams Farm Road (FR 378)	N 43.86642 W 71.69103	Phragmites	1500 Sq Ft >2000 Plants	Cut Stump with Rodeo®

Site	Town	Location	GPS Coordinates	Species	Size and Abundance	Proposed Treatment
AP 9	Woodstock	State Hwy. 118	N 43.99317 W 71.75656	Japanese Knotweed	100 Ft along both sides of road	Cut Stump or Stem Injection with Glypro® or Rodeo®
Androscoggin Ranger District						
AN 1, 2 & 3	Low and Burbanks Grant	Jefferson Notch Road	N 44.32460 W 71.36842	Japanese Knotweed	500 Ft along both sides of road	Cut Stump or Stem Injection with Glypro® or Rodeo®
AN 4	Low and Burbanks Grant	Jefferson Notch Road	N 44.30307 W 71.35519	Brown Knapweed	1 Plant	Hand Removal (No Herbicide)
AN 5	Berlin	Bog Dam Road	N 44.28020 W 71.21100	Phragmites	225 Sq Ft 10-50 Plants	Cut Stump with Rodeo®

A variety of treatments may be used to control brown knapweed (*Centaurea jacea*), Japanese knotweed (*Polygonum cuspidatum*) and Phragmites (*Phragmites australis*, also called common reed) in the 11 known sites within the Project Area. In addition to hand-pulling, three different techniques of applying registered herbicides are considered feasible and suitable for these species:

1. Backpack Spray Application - Plants are first cut in the spring and allowed to re-grow for several months. The leaves of the re-sprouts are then painted with an appropriate herbicide spray in the late summer/early fall, at which time the leaves are translocating nutrients (and herbicide) to the roots in preparation for winter dormancy. A person carries the spray unit in a backpack, and uses a nozzle head to apply a light spray directly to the leaves of the plant.

2. Cut Stump Injection - Plant stems are cut close to the soil surface in mid-to-late summer (July-September), before flowering or seed set, when root reserves are lowest. This is followed with injection (using a plastic syringe or plastic squirt bottle) of an appropriate herbicide to the exposed stem. Cutting the plant eliminates photosynthetic tissue and energy stores, and applies herbicide closer to the root system.

3. Stem Injection - Individual stems are treated by injecting herbicide directly into the uncut stem near the base of the plant. A hole is made through both sides of the stem using an appropriate tool and herbicide is then injected into this hole.

To eradicate plants from the known and suspected sites proposed in this project may require treatment using one or more of these methods over multiple growing seasons.

Glyphosate, a non-selective, systemic herbicide with a short-residual life is considered the most appropriate for use in the Project Area based on current science and management objectives (Sather and Eckardt 1987/2001; Reinartz 1997; Converse 1984). Rodeo® and Glypro® are the recommended formulations for Glyphosate.

Water resource protection was considered in selecting the proposed herbicide for treatment. Glyphosate is an herbicide that binds readily with soil particles, which limits its movement in the environment. Studies have indicated that, since it binds strongly to soils, it is unlikely to enter waters through surface or subsurface runoff. It can reach waters when the soil itself is washed away, but it remains bound in soil particles and unavailable to plants (summarized by Tu et al, 2001). No soil disturbing activities are proposed with this project.

Rodeo® and Glypro®, applied according to their label directions, are recommended for use in this project because they do not contain surfactants. A surfactant is a type of adjuvant, which is a biologically active compound that can be added to an herbicide formulation to facilitate the mixing, application, or effectiveness of that herbicide. Specifically, surfactants reduce surface tension, which ensures that the formulation spreads out and covers plants with a thin film rather than beading up, thus facilitating herbicide absorption into the plant (Tu et al, 2001). Surfactants have the potential to be mobile and pollute surface or groundwater sources and therefore are not proposed for use in this project. Rodeo® is registered for aquatic use (Tu et al, 2001).

The herbicide application methods were selected to minimize potential ecological impacts. Cut stump or stem injection of either Rodeo® or Glypro® is proposed for knotweed, because this method would avoid contact with surrounding soil and water, and limit the amount applied. Herbicide treatment of knotweed sites would not occur within 25 feet of standing water. Phragmites typically grows in wet conditions, and, even in late summer could be in standing water. Cut stump or stem injection of Rodeo® only is proposed for Phragmites, because this formulation is approved for aquatic application.

Different applications are proposed for brown knapweed. Hand removal may be effective where only one plant is known to exist (site AN4) since the root system hasn't spread or sprouted new plants. Backpack spray application of Glypro® is proposed for the other known population of brown knapweed (site AP4), where multiple plants exist. Knapweed has a thin stem, and the cut stump or stem injection methods are impractical for this plant. The backpack spray method applies herbicide directly to the foliage of the target plants. This known site is 1200 feet from the nearest surface water (Jordan Brook).

The Forest Service has received reports of additional brown knapweed plants along the Jefferson Notch Road, between the Caps Ridge Trailhead and Mt. Clinton Road to the south. To effectively limit the spread of knapweed along the full length of the road, this project proposal would also monitor this portion of the Jefferson Notch Road during the course of the summer growing cycle, and any new plants would be identified and flagged for treatment. Treatment of any additional brown knapweed would follow the same protocol and design criteria as that used for the known populations. Herbicide treatment of new sites would not occur within 25 feet of standing water. Single plants would be removed by hand; multiple stems and/or plants would receive a backpack spray application of Glypro®.

Design criteria

The following design criteria would be followed:

- Notices would be posted near all areas to be treated, and recently treated, with herbicides.
- Herbicide label directions would be carefully followed. This could include temporary closure of treatment areas for public health and safety.

- Herbicides stored on-site would have Material Safety Data Sheets per Forest Service guidelines. Individuals working with herbicides would review MSDS prior to handling.
- Rinse water for cleaning or rinsing actions in conjunction with herbicide treatment would be disposed of according to USEPA and NHDPC regulations.
- Weather forecasts would be obtained prior to herbicide treatment, and treatment activities would not proceed if there is a forecast of rain within 48 hours of application.
- Areas to receive herbicide treatment would be evaluated to ensure protection of threatened, endangered, and sensitive (TES) species. If any TES species are located, then appropriate protective measures would be implemented.
- Aquatic herbicide applications would only proceed with necessary permits from New Hampshire Division of Pesticide Control (NHDPC).
- Areas subject to ground disturbance would be surveyed for cultural resources. Found sites would be avoided, and Forest Archaeologist or paraprofessional notified to investigate.
- Retain native vegetation and limit soil disturbance as much as possible.
- Equipment, boots, and clothing would be cleaned thoroughly before moving from treatment site to ensure that seeds or other propagules are not transported to other sites.
- NNIS parts capable of starting new plants (seeds, rhizomes, etc.) need proper disposal. Plants may be piled and burned on site or bagged and moved off site. Bagged plants would either be incinerated or disposed of at designated WMNF NNIS disposal sites. For large woody bushes that are difficult to move, treatments should be scheduled prior to seed set.
- All control treatments should be timed to be most effective, based on the species phenology and life history.

The Forest Service completed a Human Health and Ecological Risk Assessment for Glyphosate in March 2003. This 281-page document provides risk assessments for human health effects and ecological effects to support an assessment of the environmental consequences of using Glyphosate in Forest Service vegetation management programs. This document is available for public review at the Laconia office of the White Mountain National Forest, or on CD by request. It is also posted on and can be downloaded from the White Mountain National Forest web page under Projects/Non-Native Invasive Plant Species Control Project.

Decisions To Be Made

Based, in parts, on your input, on the recommendations of an interdisciplinary team of resource specialists, and on the requirements of the National Environmental Policy Act of 1969, White Mountain National Forest Supervisor Tom Wagner, as the Responsible Official, will decide:

1) The level of analysis necessary to assess and document the environmental effects of this proposed project. This includes determining whether this project meets criteria for categorical exclusion from documentation in an environmental impact statement or environmental assessment, including an assessment of any extraordinary circumstances (as defined in FSH 1909.15, Chapter 30.3).
2) Whether there is sufficient information and analysis to make a decision to implement the proposed project.
3) The sites approved for treatment, and the treatments approved for each site.
4) Mitigation measures and monitoring requirements that will help assure the proposed project meets 1986 Forest Plan standards and guidelines for all resources.

This proposal and decision would consider, but not alter access management or land use objectives, nor would it consider amending the 1986 White Mountain National Forest Plan..

All or part of this project may be categorically excluded from documentation in an Environmental Assessment or Environmental Impact Statement under FSH 1909.15, Chapter 31.12, Paragraph 3 (Repair and maintenance of administrative sites) and Paragraph 4 (Repair and maintenance of roads, trails, and landline boundaries). These are categories of routine maintenance for which a project or case file and Decision Memo are not required, unless scoping indicates extraordinary circumstances exist. Forest Service regulations for "Notice, Comment, and Appeal Procedures for National Forest System Projects and Activities; Final Rule (36 CFR 215, Code of Federal Regulations)" stipulate that projects qualifying for these categorical exclusions are not eligible for comment and/or appeal following a decision by the Responsible Official. ***As such, this may represent your only opportunity to provide formal comment on this project.*** Once the level of documentation is determined and the analysis is completed, copies of the decision will be mailed to people who submit comments before or during this scoping period and to people who request copies.

Submitting Your Comments

You may submit your comments to the Forest Service via any one of the following means:

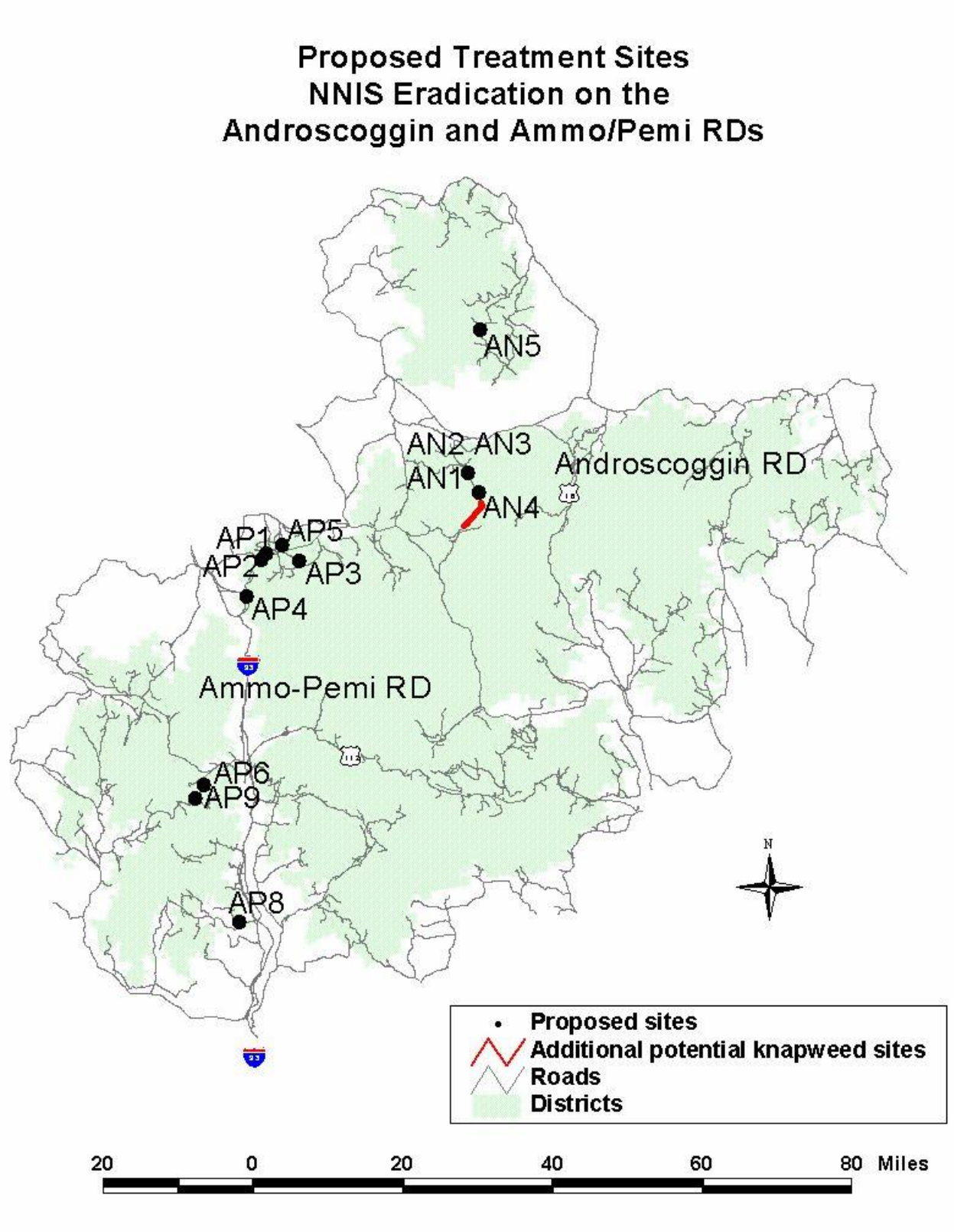
1) **Mail** – send to Rob Fallon, Forest NEPA Coordinator, White Mountain National Forest, 719 Main St., Laconia, NH 03246
2) **FAX** – send attn: Rob Fallon @ 603-528-8783
3) **Phone** – contact Rob Fallon @ 603-528-8769 (M-F, 8am-4:30pm) or use TTY number @ 603-528-8722
4) **E-mail** – rfallon@fs.fed.us

Comments should be submitted before or on Monday, June 27, 2005. Include the following:

1) Your name, address, and, if possible, your phone number and e-mail address
2) The title of the project to which your comment is in response
3) If you are commenting on specific sites, please identify sites by reference number

The purpose of soliciting your comments during this scoping period is to collect additional information and to identify any unresolved issues regarding the proposal. To make your comments responsive they should be specific to the proposed action. Your comments may address sites, potential sites and/or treatments individually (please refer to each site by reference number, or provide a specific description of additonal sites on the Jefferson Notch Road) or collectivelly. Be sure to provide supporting rationale for your comments, including concerns about environmental effects of the proposed project.

Please be aware that your name, address and comments will become part of the public record and may be available for public inspection. If this is a concern, please contact Rob Fallon at your earliest convenience.


Proposed Treatment Sites
NNIS Eradication on the
Androscoggin and Ammo/Pemi RDs
AN5
AN2 AN3
AN1
AN4
Androscoggin RD
AP1
AP5
AP2
AP3
AP4
Ammo-Pemi RD
AP6
AP9
AP8
N
Proposed sites
Additional potential knapweed sites
Roads
Districts
20 0 20 40 60 80 Miles

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